

Insert new claims 29-68, as follows:

29. (NEW) Artificial urinary diversion apparatus extending in a longitudinal direction comprising a first area having a plurality of first cross-sectional areas perpendicular to said longitudinal direction and a first outer surface, a second area having a plurality of second cross-sectional areas perpendicular to said longitudinal direction and a second outer surface, and a third area having a plurality of third cross-sectional areas perpendicular to said longitudinal direction and a third outer surface, said second area being disposed between said first area and said third area, said first area including at least one outlet, said third area including at least one inlet, at least one of said plurality of first and second cross-sectional areas being smaller than at least one of said plurality of third cross-sectional areas and at least one of said plurality of first cross-sectional areas being greater than at least one of said plurality of second cross-sectional areas, a sphincter mechanism for opening and closing said outlet, and control means for controlling said sphincter mechanism.

30. (NEW) The artificial urinary diversion apparatus of claim 29 wherein each of said first, second and third areas comprises a modular unit having said first, second and third outer surfaces adapted to provide a continuous outer surface for said apparatus.

31. (NEW) The artificial urinary diversion apparatus of claim 29 including fluid guide means for guiding a fluid directly from said third area to said first area through said second area.

32. (NEW) The artificial urinary diversion apparatus of claim 29 including a pump.

33. (NEW) The artificial urinary diversion apparatus of claim 32 wherein said pump is disposed in said third area.

34. (NEW) The artificial urinary diversion apparatus of claim 33 wherein said pump comprises a telescopic pump.

35. (NEW) The artificial urinary diversion apparatus of claim 33 wherein said pump comprises a lever pump.

36. (NEW) The artificial urinary diversion apparatus of claim 35 wherein said lever pump is contained within two of said first, second and third areas.

37. (NEW) The artificial urinary diversion apparatus of claim 33 wherein said pump comprises a screw pump.

38. (NEW) The artificial urinary diversion apparatus of claim 37 wherein said screw pump is located within said first area.

Q₁ 39. (NEW) The artificial urinary diversion apparatus of claim 38 wherein said screw pump comprises a plurality of screws, including at least one screw which is capable of being moved laterally.

40. (NEW) The artificial urinary diversion apparatus of claim 29 wherein said sphincter mechanism is disposed in said first area.

41. (NEW) The artificial urinary diversion apparatus of claim 29 including a sensor for sensing the filling level of said apparatus.

42. (NEW) The artificial urinary diversion apparatus of claim 41 including alarm means for providing an alarm based on said filling level sensed by said sensor.

43. (NEW) The artificial urinary diversion apparatus of claim 42 wherein said alarm means comprises a sound or seismic alarm signal.

44. (NEW) The artificial urinary diversion apparatus of claim 41 wherein said sensor is controlled by the nerves responsible for the control of a normal bladder.

45. (NEW) The artificial urinary diversion apparatus of claim 29 including a power supply.

46. (NEW) The artificial urinary diversion apparatus of claim 45 wherein said power supply includes an external recharge device and an internal recharge responsive device cooperating with said external recharge device.

47. (NEW) The artificial urinary diversion apparatus of claim 46 wherein said internal recharge responsive device cooperates inductively with said external recharge device.

48. (NEW) The artificial urinary diversion apparatus of claim 45 wherein said power supply comprises primary battery means.

49. (NEW) The artificial urinary diversion apparatus of claim 48 wherein said primary battery means is integrated into said apparatus.

50. (NEW) The artificial urinary diversion apparatus of claim 29 including expulsion means for expelling liquid from said apparatus.

51. (NEW) The artificial urinary diversion apparatus of claim 29 wherein said third area comprises a plurality of said third areas.

52. (NEW) The artificial urinary diversion apparatus of claim 51 wherein said plurality of third areas are movably disposed with respect to each other.

53. (NEW) The artificial urinary diversion apparatus of claim 29 wherein said third area includes a pair of said inlets.

54. (NEW) The artificial urinary diversion apparatus of claim 29 including at least one anti-reflux valve.

55. (NEW) The artificial urinary diversion apparatus of claim 54 including a plurality of said anti-reflux valves.

56. (NEW) The artificial urinary diversion apparatus of claim 54 wherein said anti-reflux valve is contained within said third area.

57. (NEW) The artificial urinary diversion apparatus of claim 29 including a fixing element for fixing said apparatus in a human body.

58. (NEW) The artificial urinary diversion apparatus of claim 57 including connection means for connecting said fixing element to said apparatus.

59. (NEW) The artificial urinary diversion apparatus of claim 58 wherein said connection means comprises a dovetail joint.

60. (NEW) The artificial urinary diversion apparatus of claim 58 wherein said connection means comprises guide rail means for movably locking said fixing element at a predetermined location with respect to said apparatus.

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61. (NEW) The artificial urinary diversion apparatus of claim 60 wherein said guide rail means is integrated into said third area.

62. (NEW) The artificial urinary diversion apparatus of claim 57 wherein said fixing element includes an expandable member for altering the shape of said fixing element.

63. (NEW) The artificial urinary diversion apparatus of claim 62 wherein said expandable member is entirely included within said fixing member.

64. (NEW) The artificial urinary diversion apparatus of claim 62 wherein said fixing element comprises a biocompatible elastic material.

65. (NEW) The artificial urinary diversion apparatus of claim 64 wherein said biocompatible elastic material comprises silicone.

66. (NEW) The artificial urinary diversion apparatus of claim 29 wherein said outer surface of said apparatus comprising said first, second and third outer surfaces has a shape in a plane perpendicular to said longitudinal direction corresponding to the 6th polynomial function

$$F(x) = A + a_1x + a_2x^2 + a_3x^3 + a_4x^4 + a_5x^5 + a_6x^6$$

wherein A is between 0 and 2, a_1 is between 0 and 8, a_2 is between 0 and -2, a_3 is between 0 and 1, a_4 is between 0 and -0.1, a_5 is between 0 and 0.003, and a_6 is between -0.00001 and 0 and x is between 0 and 22.

67. (NEW) The artificial urinary diversion apparatus of claim 29 wherein said outer surface of said apparatus comprising said first, second and third outer surfaces as a shape in a plane parallel to said longitudinal direction which corresponds to the 6th polynomial function

$$F(x) = A + a_1x + a_2x^2 + a_3x^3 + a_4x^4 + a_5x^5 + a_6x^6$$

wherein A is between 0 and 2, a_1 is between 0 and 8, a_2 is between 0 and -2, a_3 is between 0 and 1, a_4 is between 0 and -0.1, a_5 is between 0 and 0.003, and a_6 is between -0.00001 and 0 and x is between 0 and 22.

68. (NEW) The artificial urinary diversion apparatus of claim 67 wherein said first, second and third areas are integrally formed.
